

IN THE CLAIMS:

Please amend the claims as follows. A marked-up version of the claims is attached herewith.

1. Method for inserting a watermark into data (x) representing a content to be protected, comprising the steps of:

- a) supplying a pseudo random noise sequence (v) to the input of a filter with predefined impulse response (h); and
- b) adding said filtered pseudo noise sequence (w) to said data.

2. Method according to Claim 1, further comprising the steps of:

- c) performing a pseudo random interleaving (p) of the data (x) before step b); and
- d) performing an inverse interleaving after step b) so as to obtain the watermarked data.

3. Method for detecting a watermark in data (r) representing a content received, comprising the steps of:

- i) performing a spectral analysis of said data; and
- ii) deducing therefrom whether said data include a pseudo noise sequence which has been filtered by a filter with predefined spectral response ($H(f)$).

4. Method according to Claim 3 for detecting a watermark in data (r) representing a content received, the watermark being adapted to be inserted in accordance with the method according to Claim 2, further comprising:

- iii) performing, before step i), a pseudo random interleaving (p) of the data (r) received, which is identical to the interleaving performed in step c).

5. Watermarking System using a watermark insertion method according to Claim 1 and a watermark detection method according to Claim 3, wherein a first series of parameters (v, h), the private key (K_{PRI}), is used for the insertion of the watermark and a second series of parameters ($|H(f)|$), the public key (K_{PUB}), is used for the detection of the watermark, so that:

knowledge of the public key does not make it possible to know the private key; and

knowledge of the watermark detection method and of the public key does not make it possible to delete or modify the watermark.

6. Device for inserting a watermark into data (x) representing a content to be protected, comprising:

means for generating a pseudo random noise sequence (v);

filtering means [(16)] having a predefined impulse response (h) and which are adapted for receiving said pseudo noise sequence (v) and for supplying a filtered pseudo noise sequence (w); and

means for adding said filtered pseudo noise sequence (w) to said data (x).

7. Device according to Claim 6, further comprising:

first means of pseudo random interleaving of the data (x) representative of the content to be protected so as to supply interleaved data (\tilde{x}), said interleaved data being supplied to the addition means so as to be added to the filtered pseudo noise sequence (w); and

means of inverse interleaving of said first interleaving means, linked to the output of said addition means so as to supply the watermarked data.

8. Device according to Claim 6, comprising:

means for transforming the content to be protected into data (x) representative of said content;

means for generating a modulation sequence (m) indicative of the maximum amount of noise which can be added to said data;

wherein:

first means of pseudo random interleaving of said data (x) representative of the content to be protected so as to supply interleaved data (\tilde{x});

second means of pseudo random interleaving, which are identical to the first adapted for receiving said modulation sequence (m) so as to supply an interleaved modulation sequence (\tilde{m});

multiplication means adapted for receiving, on the one hand the interleaved modulation sequence (\tilde{m}), and on the other hand the filtered pseudo noise sequence (w), so as to supply the watermark;

means of addition of the interleaved data (\tilde{x}) and of the watermark, the output of said addition means being linked to:

means of inverse interleaving of said first and second interleaving means so as to supply the watermarked data (y); and

means of inverse transformation of the watermarked data into a marked content.

9. Device for detecting a watermark in data (r) representing a content received, comprising:

means for estimating the power spectral density of said data; and

means of likelihood testing of hypotheses so as to estimate whether said data include a pseudo noise sequence which has been filtered by a filter with predefined spectral response ($H(f)$).

10. Device according to Claim 9, adapted for detecting a watermark inserted by an insertion device wherein:

means of pseudo random interleaving of the data (r) representing the content received, which are adapted for performing the same interleaving (p) as said first interleaving means of the insertion device, said interleaved data (\tilde{r}) being supplied to said means for estimating the power spectral density.

11. Device according to Claim 10, adapted for detecting a watermark inserted by an insertion device wherein:

means for transforming the content received into data (r) representative of said content, said transforming means being adapted for performing the same transformation as the transforming means of the insertion device.